

What is Claimed is:

1. A laser diode having a PCB type lead frame, comprising:
a luminous element for emitting a laser beam;
5 a frame unit having an upper section mounted with the luminous element and functioning to radiate heat generated during creation of the laser beam;
a housing having an internal space for receiving the frame unit and an exit hole communicating with the internal space for
10 allowing the laser beam to pass through the same; and
a Printed Circuit Board (PCB) having a plurality of pattern electrodes formed on an upper face of the PCB, the pattern electrodes being electrically connected with the luminous element.
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2. The laser diode having as set forth in claim 1, wherein the luminous element includes a photodiode which is die bonded to an upper section of the frame unit and a laser chip which is die bonded to an upper face of the photodiode.
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3. The laser diode having as set forth in claim 1, wherein the frame unit comprises a metal plate having an excellent heat conductivity.
- 25 4. The laser diode having as set forth in claim 1, wherein

the frame unit has a wing section formed at both sides thereof, and is mounted within the internal space of the housing.

5 5. The laser diode having as set forth in claim 4, wherein the housing has holding grooves formed axially in inner peripheral portions of the internal space of the housing, and wherein the wing section includes wings which are extended laterally from both lateral peripheral portions of the frame unit to be inserted into the holding grooves and fixed therein.

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6. The laser diode having as set forth in claim 5, wherein each of the holding grooves has a fitting groove extended radially in a top portion thereof.

15 7. The laser diode having as set forth in claim 4, wherein the wing section includes arc-shaped wings which are elastically contacted with inner peripheral portions of the internal space of the housing.

20 8. The laser diode having as set forth in claim 7, wherein the arc-shaped wings are projected forward or backward perpendicular to a front or rear face of the frame unit.

9. The laser diode having as set forth in claim 1, wherein
25 the frame unit has arc-shaped protective wings formed at both

lateral peripheral portions of the frame unit to surround and protect the luminous element.

10. The laser diode having as set forth in claim 9, wherein
5 each of the protective wings has an end which is formed higher than the uppermost portion of the luminous element.

11. The laser diode having as set forth in claim 1, wherein
the pattern electrodes of the PCB are connected with the luminous
10 element via wire members.

12. The laser diode having as set forth in claim 11,
wherein the pattern electrodes of the luminous element are
extended to an upper peripheral portion of the PCB in close
15 proximity of the luminous element to form upper terminals in contact with lower ends of the wire members.

13. The laser diode having as set forth in claim 1, wherein
the PCB comprises a single sided PCB having a front face on which
20 the pattern electrodes are formed.